

# A.A.A.S. BULLETIN

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## Academic Freedom

Of all the freedoms for which men have struggled, academic freedom is the most precious. It pertains to the chainless mind, not to the body, which may be fettered. In its general sense it has been found not only in academic circles, but in all those rare spirits who have led mankind out of barbaric darkness into light. It was the flame that glowed in Socrates while he drank the hemlock, and in Archimedes when he was slain by Roman legions as he drew geometric figures in the sand. It sustained Galileo in persecution, and Latimer and Ridley as they burned at the stake.

Academic freedom has been maintained in a less heroic manner but on a larger scale by the universities which in recent centuries have been established in rapidly increasing numbers throughout the world. They are generally regarded only as centers of learning; more truly they are places where the mind bows only to commands of the conscience. In far future ages the colleges and universities of our day will be remembered, not so much as places where learning and wisdom flourished, but as oases in which the freedom of the mind was not permitted to die.

That eternal vigilance is the price of liberty is as true in the domain of the mind as in that of the body. Subjugation of the body is direct and physically obvious. Restrictions on the freedom of the mind are often indirect and obscure. They appear in such forms as long-established superstitions, theological dogmas, traditions, and social customs. Often they are interwoven with things that are good or at least highly desirable. For example, the enormous Army and Navy edu-

cational programs in the universities and colleges are such mixtures. They have made it necessary to change methods and standards of education, they have seriously disrupted courses, and at the same time they have provided financial support to educational institutions when it was greatly needed.

Financial support of education from the Government! What a world of difficulties such assistance removes, at least for a time! With the relief that comes from receiving Federal funds it is easy to close the eyes to consequences that might be unpleasant. Apparently there has been no serious attempt to determine to what extent educational institutions are casualties of the war. Presumably they are being harmed and also benefited, as are our soldiers and sailors. It would be well worth while to inquire into the effects of the war upon American education.

Irrespective of the question of the improvement or deterioration of higher education, in general the universities and colleges of the country are now confronted with serious financial problems. They truly face an emergency. What more natural than that they should turn to the Government to finance for a year in college all men and women leaving the services who desire to avail themselves of such an opportunity for additional education? There are legitimate and rather convincing arguments in support of this proposal. But at the close of the year there will still be the same emergency. Then the suggestion will almost inevitably be made that the plan be continued a second year for all who pass the first year and for all whose releases from the services will have been delayed. Naturally an institution facing an acute emergency will not be unduly strict in grading students on whose return its future seems to depend. At the end of the second year a continuing emergency will call for a third year, and then the colleges and universities will have been added to the long list of pressure groups receiving sustenance from Washington.

It will be said that the country owes much to the youths in its armed services, and that is quite true. Nearly 50,000 young men have lost their

lives (up to May 1) since Pearl Harbor, and more than twice as many have been wounded or are missing. But they are not the only casualties of the war. According to the National Safety Council, more than 100,000 war workers have been killed in accidents during the same period, and injuries have permanently reduced 350,000 others to the 4-F classification. Broken hearted parents by the thousands, wayward teen-age girls by the tens of thousands, and delinquent children by the hundreds of thousands are also casualties of the war. No flags will be waved in honor of these latter pitiful cases, no preferences in employment will be extended to them, no educational institutions will have special interest in their welfare. Perhaps the colleges and universities cannot be expected to be interested in them. But if these institutions invite to their halls masses of governmentally subsidized returning soldiers and sailors, with slight regard for their educational preparation and less for their ambitions, let it not be done under the pretense that it is for sake of higher education. The world will see through their sophistry and their consciences will cry out that they are bartering away academic freedom.

But the specter of urgent need of money for operating expenses always arises, and what is so easy as to turn to Washington for help? Can it be that we are descendants, only two or three generations removed, of those who first built the little red school houses on our hills, and then out of their pioneer poverty established and supported colleges and universities by the hundreds all over our land? With increasing wealth they endowed and equipped many of these institutions and made it easy for their descendants to acquire the knowledge for which they thirsted, confident that they were preparing the way for a happier and nobler life. Now, after a four-fold increase of productivity per capita of the necessities and luxuries of life, are we to confess that the high expectations of our ancestors are not being realized, and look helplessly toward Washington for support?

Away with this defeatism! Our soldiers and sailors are playing the roles of men all over the world. When they return, they should be treated as men, not mendicants. The spirit of our forefathers is not dead. It still burns in the homes on our prairies and along our frontiers. The task of making up for the waste of the war is easy in comparison with that of transforming this continent in a few generations from a wilderness to the riches of today. Support of our educational institutions, on even an extravagant plane, awaits

only a renewal of courageous and vigorous leadership. Let us be inspired by the memory of our heroic predecessors, and let us not betray our successors. Let us leave to them educational institutions in which academic freedom in the high sense of individual liberty joined with individual responsibility to society is a living reality.

Lord God of Hosts, be with us yet,  
Lest we forget, lest we forget!

—F.R.M.

### Trend of Membership of the Association

There is an old saying to the effect that it does not matter so much where we are as in what direction we are going. Since there is probably some truth in this adage, let us look back 20 years to the good old days of 1924 with prosperity in full stride. For four years the Association had been making very rapid progress under the permanent secretaryship of Dr. Burton E. Livingston in membership, character of meetings, and influence. The decade following the close of World War I was a great period for science.

In order to simplify the picture statistics will be presented for five-year intervals except for the last, when the data will be given for both 1943 and 1944. It is possible that difficulties are overtaking the Association during our present supreme war effort without our realizing it. There are, of course, always some members in arrears for various reasons, such as failing health, loss of position or carelessness. When a society begins to lose ground one of the first evidences is the dilatoriness of members in meeting their obligations. For this reason the number of members in arrears on dues will be included with membership figures. It should be remembered that it is the percentage of arrears, rather than the actual number, which is significant.

Year (May 1)	Membership	Arrears	Arrears
1924	12,579	1,048	8.3%
1929	18,514	1,317	7.1%
1934	18,581	2,471	13.3%
1939	20,254	1,829	9.0%
1943	24,784	2,422	9.8%
1944	25,417	1,958	7.7%

Experts in determining population trends might calculate from these data what the membership of the Association will likely be in 1975. It will serve present purposes better to reflect on the role that science is playing in the world and limit our speculations to a much shorter period.

This war is distinguished from all earlier ones by the fact that it is a war of science, technology

and mass production, the latter hanging on the first and the first relatively impotent without the second and third. Most of the battles so far won have been won because the victors had superior science. Those now impending will likely be decided by the same factors. The National Roster of Scientific and Specialized Personnel reports that in this country more than 200,000 scientists are engaged full-time in the war effort. The peace that will follow will be a peace equally depending upon science, and it will require the energies not only of those fields which have been most useful in the war but also of all other fields. The National Roster now carries the names of more than half a million scientists, and many things point to an acute shortage of scientists in the post-war period. Consequently the conjecture that the Association, serving as a great coordinating agency in science, will have 40,000 members by 1950 does not appear to be unduly rash.

### The June Scientific Monthly

The June issue of *The Scientific Monthly* completes the 58th volume of this magazine and the first in the new format. It consists of 484 pages of text, equivalent to 572 of the slightly smaller type pages in use before the restrictions on paper by the War Production Board made it necessary to put more type on a page.

This volume of the Monthly carries 57 principal articles, 21 shorter articles in *Science on the March*, 30 book reviews, 35 items in *Comments and Criticisms* and two portraits and biographical sketches, one of Dr. Anton J. Carlson, president of the Association, and one of Dr. J. McKeen Cattell, for many years editor and publisher of *The Scientific Monthly*. The principal articles in this volume are distributed among the natural and social sciences roughly as follows: The physical sciences, about 31 percent; the biological sciences, about 22 percent; and the social sciences and general discussions, about 47%.

The article by Dr. Karl Sax on "Populations of a New World Order" was reprinted in *Science Digest* and several other articles received much favorable comment. Perhaps the most timely one was "Synthetic Rubber" by E. R. Gilliland, Assistant Rubber Director in charge of Research and Development.

The first article in the June issue, that on "Penicillin," is equally timely. It was written by Dr. Albert L. Elder, until recently Head Chemical Adviser for the War Production Board and Coordinator of the Penicillin Program.

Others of almost equal current timeliness is "Senescence and Industrial Efficiency," by Edward J. Stieglitz, and "The Nutrition Foundation," by Charles Glen King.

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Members who receive *Science* free with their memberships may subscribe for *The Scientific Monthly* at the special member's rate of \$3 per year. Persons subscribing for *The Scientific Monthly* at this time receive back numbers from January when volume 58 began. However, the limitations on paper will make it necessary in the very near future to decline to accept further subscriptions unless lighter paper of the required quality can be obtained.

### The Annual Science Exhibition

During the first four days of the Cleveland meeting (September 11 to 14, inclusive), the annual science exhibition will be a special attraction to visiting scientists. The exhibition has become increasingly an important feature of the annual meeting; in fact, a meeting without the exhibition now would be incomplete.

As usual, the exhibition will be the rendezvous where the newest publications on science and the latest available scientific equipment may be inspected. Technical exhibits will be displayed to show the advancement of science in all fields that are not restricted by war regulations. Arrangements are being made for a daily program of educational and scientific motion-picture films.

Space for the exhibition will be provided on the Arena floor of the Cleveland Public Auditorium. Besides the necessary layout for booths for commercial and technical exhibits, accommodations will be arranged and appropriately located for the convenience and comfort of visitors—a lounge and writing tables, as well as the registration office and the visible directory of those attending the meeting.

Announcements of the exhibition have been mailed to prospective commercial exhibitors and to secretaries of sections and affiliated societies. The circular contains illustrations of the floor plan and the type of booths to be supplied the exhibitors, and information about equipment and services that can be supplied by the Auditorium. Each exhibitor will be expected to furnish a description of his exhibit to be published in the general program of the Cleveland meeting. An illustration of the floor plan will be published also in the general program for quick reference.

Members of the Association are urged to forward names and addresses of scientists who have research material that can be suitably displayed. Dynamic rather than static exhibits are preferred. Information is desired also concerning educational and scientific motion-picture films. Merely address the Office of the Permanent Secretary, Smithsonian Institution Building, Washington 25, D. C.

#### Hotel Headquarters—Cleveland Meeting

Hotel headquarters for the sections and societies participating in the Cleveland meeting have been concentrated in hotels in the downtown area. Although there are several large apartment hotels in the vicinity of the campuses of Western Reserve University and Case School of Applied Science, the management of only one of these hotels will be able to provide accommodations, and for only 30 guests. Accordingly, session rooms will be assigned in hotels as far as possible, at the same time meeting the requirements of seating capacities for the estimated attendance. Fortunately, the largest hotels are situated within a few blocks of one another, and each hotel is within ten minutes' walk of the Cleveland Public Auditorium where the exhibition and registration office will be housed. Evening sessions will be held in the Music Hall in the Auditorium.

A plan is being considered whereby all requests for hotel-room reservations may be sent to a "central agency," perhaps, the Cleveland Convention Bureau. The advantages of such a plan are many, the most important being the promptness with which requests will be handled and without unnecessary correspondence on the part of persons attending the meeting. Because of the heavy demand for room accommodations due to conditions caused by the war, it may not be possible in every case to provide rooms in the section's or society's headquarters hotel, but the central agency would endeavor to carry out each

request as far as choice of location and price are concerned. As soon as the plan is completed for handling requests for rooms through a central agency, announcement of it will be made in the BULLETIN.

Below is a list of the headquarters assignments to sections and societies; also, a schedule of room rates of the larger hotels in Cleveland.

#### Statler

General Headquarters of the Association and Sections on Physics, Zoological Sciences, Anthropology, Psychology, Social and Economic Sciences, Historical and Philological Sciences, Medical Sciences, and Education.

American Society of Zoologists  
American Society of Parasitologists  
American Microscopical Society  
American Society of Naturalists  
Union of American Biological Societies  
National Association of Biology Teachers  
Phi Sigma Society  
American Psychological Association  
American Association of Applied Psychology  
American Statistical Association  
American Association of Scientific Workers  
American Society for Aesthetics  
Society of the Sigma Xi  
Sigma Pi Sigma  
Sigma Delta Epsilon

#### Allerton

Ecological Society of America  
Genetics Society of America

#### Carter

Sections on Mathematics, Astronomy, and Agriculture.  
American Meteorological Society  
American Society for Horticultural Science  
American Nature Study Society

#### Cleveland

Sections on Chemistry, Geology and Geography, and Engineering.  
Society of Rheology  
Association of American Geographers  
National Council of Geography Teachers  
Research Council on Problems of Alcohol

#### Hollenden

Sections on Botanical Sciences.  
Botanical Society of America  
American Society of Plant Physiologists  
Mycological Society of America  
American Society of Plant Taxonomists  
American Fern Society  
American Phycological Society

#### Room Rates

Statler: Single, \$3-\$6; double, \$5-\$8.  
Allerton: Single, \$2.50-\$3.50; double, \$3.50-\$5 (includes twin bedded rooms).  
Carter: Single, \$3-\$6; double, \$4.50-\$9 and \$5.50-\$9 (twin bedded).  
Cleveland: Single, \$3-\$7; double, \$4.50-\$9 and \$6-\$12 (twin bedded).  
Hollenden: Single, \$3-\$5; double, \$4.50-\$6.50 and \$5-\$12 (twin bedded).



### Papers for the Cleveland Meeting

Scientists desiring to present papers at the Cleveland meeting of the Association next September 11-16 should communicate with the secretaries of the sections in whose fields their respective interests lie. Since most of the programs are organized around particular subdivisions of the general fields of the sections, it may not be possible to provide time for all papers on isolated subjects.

The names and addresses of the secretaries of the sections are as follows:

- Mathematics (A): Dunham Jackson, University of Minnesota, Minneapolis, Minn.  
 Physics (B): Henry A. Barton, 57 E. 55th Street, New York City.  
 Chemistry (C): Neil E. Gordon, Wayne University, Detroit 1, Mich.  
 Astronomy (D): Charles C. Wylie, University of Iowa, Iowa City, Iowa.  
 Geology and Geography (E): George W. White, The Ohio State University, Columbus 10, Ohio.  
 Zoological Sciences (F): James W. Buchanan, Northwestern University, Evanston, Ill.  
 Botanical Sciences (G): George W. Martin, University of Iowa, Iowa City, Iowa.  
 Anthropology (H): W. W. Greulich, Western Reserve University, Cleveland 6, Ohio.  
 Psychology (I): Edna Heidbreder, Wellesley College, Wellesley, Mass.  
 Social and Economic Sciences (K): E. P. Hutchinson, West Beechtree Lane, Strafford, Wayne, Pa.  
 Historical and Philological Sciences (L): Raymond J. Seeger, 11 Wetherill Road, N.W., Washington 16, D. C.  
 Engineering (M): Frank Dana Carvin, Newark College of Engineering, 367 High Street, Newark 2, N. J.  
 Medical Sciences (N): Malcolm H. Soule, University of Michigan, Ann Arbor, Mich. *Subsection on Dentistry*: Paul C. Kitchin, The Ohio State University, Columbus 10, Ohio. *Subsection on Pharmacy*: Glenn L. Jenkins, Purdue University, LaFayette, Ind.  
 Agriculture (O): W. A. Albrecht, University of Missouri, Columbia, Mo.  
 Education (Q): H. H. Remmers, Purdue University, LaFayette, Ind.

### Petroleum in War

Petroleum presents an excellent illustration of the fabulous rate at which natural resources are being consumed in the war. Its importance in peace is known to every one, and its exhaustion can be looked forward to only with dismay. However, its consumption in times of peace, as well as in war, is so enormous that it is difficult to get any real understanding of what is hourly taking place.

Before the war there were over 34,000,000 privately owned automobiles, buses and trucks in use in the United States, or an average of more than one to every four persons. In the operation of these motor vehicles for a year 27,000,000,000

gallons of gasoline were used, or about 200 gallons per capita. The energy generated by the use of oil was three times greater than that from all the water power developed in the country. In fact, if all the water power in the United States were fully developed it would not be enough to displace petroleum. As another measure of the role petroleum has been playing in our life and economy, the tax paid on gasoline in 1941 amounted to nearly a billion dollars, or more than the entire cost of operating the Federal Government for any year in time of peace down to 1900.

Restrictions of civilian use of gasoline throughout the country are convincing evidence that much is being consumed in military and naval activities. This shortage has developed in spite of increased production in existing wells, and the drilling of more than 18,000 new wells last year. Crude oil is being used in the several thousand ships that have been built since the United States entered the war, a total by the Navy alone of more than 26,000,000 barrels in 1942 and much more in 1943. More than 1,000,000 motor trucks and 50,000 tanks have been produced for our armed forces. The average army division must have available almost 200,000 horsepower, or 50 times the amount required in 1918; a mechanized division on the move requires 18,000 gallons of gasoline per hour. But it is in aviation that the consumption of high-octane gasoline becomes almost beyond imagination. With planes now being produced at the rate of 100,000 per year, the air service will be using as much high-octane gasoline as the total consumption of motor fuels by our ground forces or by our naval vessels in service.

An interesting aspect of these developments is the great concentration of power that engineering and physical and chemical science has made possible by the development of internal combustion engines and high-octane gasolines. All the horses in the world working at the limit of their capacities could not do as much work as is being done by gasoline in propelling our planes across the sky. In doing work, horses simply transform energy recently arrived on this earth from the sun and stored up temporarily in the food they eat. The energy in the petroleum that humans use in flying planes across the sky also came from the sun, but not this year or last year. Instead it came to the earth during hundreds of millions of years before the origin of man, some of it was caught by chlorophyll and stored in the cells of early plants, and a small fraction of this, transformed and concentrated as crude oil be-

neath oceans of sediments, is now indispensable in times of peace and of war. We might flatter ourselves, at least for a moment, with the thought that the accumulation of energy in petroleum through vast geological ages was in preparation for this period in the history of man, the "one far-off divine event to which the whole Creation moves."

But beyond speculation, this particular period will come to a close because of the exhaustion of its sources of energy. Petroleum will cease to flow in adequate quantities in a matter of decades or a century or two at the most. Unless the consumption of petroleum continues to increase, the petroleum bearing shales will last some centuries and coal a few thousand years, but as surely as night follows the day they will be practically exhausted in a shorter time than that between the stone age and the present day. Of course, it is expected that new sources of energy will be discovered, but expectations are not always realized.

Something like fifty million years ago the dinosaurs ruled the earth; they are now only skeletons on exhibition in our museums.

#### Virginia Academy of Science

On May 9-10 a meeting (the twenty-second) of the Virginia Academy of Science was held which illustrates excellently the remarkable and gratifying activities of many of the affiliated state academies of science. They are under local management and their programs are devoted in considerable part to problems of state interest without being provincial. At the same time their members participate in such national meetings as those of the Association. They achieve the ideal of local initiative and independence combined with sense of responsibility to the larger interests of the country and, indeed, the world.

The state academies organize their programs under a number of sections, somewhat similar to the larger meetings of the Association. After a dinner on the first evening of the meeting of the Virginia Academy of Science an address illustrated by motion pictures in colors was delivered by Dr. E. H. Hamann, of New York City. The next day the section meetings were held. The astronomers, mathematicians and physicists presented a program of 10 scientific papers and one report of which none was on local problems, unless possibly one on unusual weather. The bacteriology section's program of 10 papers was also mostly of general scientific interest. However, the 25 papers presented before the section of biology were largely on subjects of particular

importance in Virginia. The 16 papers of the chemistry section were on general subjects, but the 4 on education and the 14 on geology naturally related to Virginia problems. Among the 9 papers presented before the section of psychology was one reminding us of possibly a new aspect of war, entitled "Observation and Reeducation of German Prisoners of War." The section which may be most surprising is that of statistical methods, the program of which consisted of 11 principal papers and 7 brief reports, illustrating the rapid increase in appreciation of the importance of statistical methods for advancing science in many fields.

Such organizations as the Virginia Academy of Science do not spring up and flourish like weeds. The ground for them is prepared, the seeds are planted, and they are cultivated by loving hands. In plain language, the successful state academies of science flourish because competent scientists with almost the crusading spirit tirelessly attend to their interests. The Virginia Academy owes very much of its great success to Drs. Wortley F. Rudd and E. C. L. Miller.

#### *History of the Virginia Academy*

Back in 1920 a few scientists met at the Thanksgiving meeting of the Virginia Education Association in Richmond. They realized the need of forming an organization for the advancement of science in Virginia. However, a state academy of science seemed too formidable a project for that time, so being biologists they formed an Association of Virginia Biologists. Their organization was so successful that in 1922 the Executive Committee was authorized to "proceed to the formation of a State Academy at its discretion." Suitable notices were sent out and the next year at Williamsburg, the Virginia Academy of Science was organized at the regular meeting of the Association of Biologists, April 26, 1923. Regular meetings have been held since, mostly at the different colleges.

From the first, the promotion of scientific research had been one of the objects in view, and so two years later, a preliminary committee on research was appointed. The report was so constructive and favorable that a permanent committee was created. The chairman of this preliminary committee was elected president of the Academy, and he at once went out among his friends and raised an endowment fund of about \$12,000 for this permanent committee to administer. The next year this committee awarded a prize of \$50 for an outstanding paper read at the meeting, and such a prize has been awarded each year since. After the Academy prize is taken out the rest of the income, together with the award from the A.A.A.S. is distributed as grants in aid of research. In 1939, the committee published a "Review of the First Ten Years of the Research Committee."

In 1936, one of our members had a bright idea for stimulating research by developing a friendly competition among a group of state academies (Virginia, North Carolina, South Carolina, Georgia and Florida). Accordingly, each year he provides each academy with a gold medal to be awarded for an outstanding paper read at its meeting. The five papers that have won these medals are then brought together in competition with one another for a cash prize of \$100.

The botanists, of course, wanted a flora of the state, so in 1926 a permanent committee was created to "undertake the preparation and ultimate publication of a flora of Virginia." This committee has worked continuously ever since and has already published in book form a "Flora of Richmond and Vicinity" (with aid from the state) and in mimeographed form a "Check List of the Ferns of Virginia." Its accumulations are rapidly approaching completion.

Sections have gradually developed and demonstrated their value until now we have: Astronomy, Mathematics and Physics; Bacteriology; Biology; Chemistry; Education; Engineering; Forestry; Geology; Medical Sciences; and Psychology. They elect their own officers, arrange their own programs and hold their own meetings, so that they are almost entirely autonomous, but do fit into the general meetings.

The Academy also has several classes of members—Patrons who contribute \$1,000 or more to the Academy; Life Members who contribute \$50 or more to the Academy; Sustaining Members who pay dues of \$10 a year; Collegiate Members who are college students and who pay dues of \$1 a year, and Regular Members who pay dues of \$2 a year.

Naturally, the Academy started in a small way, having only 152 members at the time of the second meeting. It has grown nicely, passing the 900 mark in 1940. It has lived the rather dull and orthodox life of a state academy of science. As it matured, however, it began to be felt more and more strongly that an academy, like an individual, should have a planned life work; that unless it did something really worthwhile it better disband, dissolution being preferable to innocuous desuetude. Accordingly, in 1941, a Long Range Planning Committee was created, first to answer the question "What should a state academy of science do?" and second, to lay out the lines of work this Academy should pursue during the coming years. After a rather elaborate study, this committee adopted two major projects (1) a complete study of the James River Valley as a place for human habitation; and (2) the sponsoring and fostering of science clubs in the high schools of the state. Sub-committees for these projects have been appointed and the work is in progress though over-shadowed by the war.

### The American Society of Plant Physiologists

The American Society of Plant Physiologists was organized during the year 1923-1924, for the advancement of plant physiology as a pure and applied field of botanical science. Preliminary steps toward or-

ganization were taken during the autumn of 1923, and a constitution was adopted during the winter. The first annual election was held in June, 1924, at a time when the membership list of the Society contained 76 names. The first officers of the organization were Charles A. Shull, president; R. P. Hibbard, vice-president; and R. B. Harvey, secretary-treasurer. On October 12, 1924, the Society was accepted as an affiliated society of the A.A.A.S.

While there was originally but one class of memberships, it was soon found expedient to provide for patrons, life members, annual members, and corresponding members, all of which classes are now defined in the constitution. Corresponding members are elected from time to time from other nations, but the number is restricted not to exceed two percent of the other memberships.

At first the dues were small, but when, in 1925, steps were taken to establish an official journal, the dues were fixed at \$5 for domestic and \$5.50 for foreign membership. The journal, to be known as *Plant Physiology*, was authorized at Kansas City in December 1925, and publication began with the year 1926. At present *Plant Physiology* is in its 18th volume. The first editorial board consisted of the following: Charles A. Shull, editor-in-chief, Burton E. Livingston, Charles B. Lipman, Francis E. Lloyd and Carleton R. Ball.

Growth of the Society was very rapid at first, and it then enjoyed a long period of steady development, which was slowed somewhat by the depression, and finally halted by the present world conflict. It is, however, maintaining its position ready for the upward swing which will come with peace. Just before the war there were over 600 members and approximately 500 subscribers with a very wide foreign distribution.

The first annual meeting at Washington, D. C., in 1924, has been followed in every year up to 1942, by a mid-winter meeting in affiliation with the A.A.A.S. In common with other organizations, the 1942 meeting was cancelled at the request of transportation authorities. During the early years summer meetings were held, but these have become less urgent, with the development of regional and institutional sections, whose annual meetings are held at other times than the mid-winter meetings. Two institutional sections have operated, one at the University of Minnesota and the other at Purdue University. Three regional sections have been organized to accommodate members who live far from the centers of mid-winter meetings. These are the New England Section, with meetings in May somewhere in New England; the Western Section, which meets in June with the Pacific Division of A.A.A.S., and the Southern Section, which meets in February with the Southern Agricultural Workers. These sections are autonomous but maintain themselves within the parent Society.

Very early in the Society's history provision was made to honor members who had distinguished themselves and nonmembers who did outstanding work in this field. The first development of this kind took place at Kansas City in 1925. The Charles Reid



Barnes honorary life membership was established, to be awarded annually to some outstanding member whose lifelong devotion to plant physiology merited recognition. The first award was made to Burton E. Livingston at the Philadelphia meeting in 1926; and at every annual meeting since, some one or more members have been thus honored. The recent award to O. L. Sponsler of the University of California at Los Angeles was the nineteenth award of this honor. The award is supported by an endowment of \$3,000 which was set aside between 1930 and 1934.

In 1927 another fund was started, which is now known as the Stephen Hales fund. Appropriately celebrating the 250th anniversary of Hales' birth, and the 200th anniversary of the publication of his great work "Vegetable Statics," the Nashville meeting was made the occasion for gifts toward an endowment to support a prize award to be known as the Stephen Hales prize. About 80 members contributed more than \$1,000 to start the fund, and it was subsequently raised to \$2,000. An award is made each second year to some outstanding investigator, who does not need to be a member of the Society to win the award. The recent award to Cornelis B. van Niel for his work on photosynthesis of the lower organizations was the eighth award of this prize. A certificate bearing the portrait of Stephen Hales is presented with the prize.

Other endowment funds for general support of the Society's program have been accumulated, and the total endowments of all classes are now approximately \$10,000. For an organization not yet 20 years old, it has made unusual progress toward financial stability.

Since the holding of such funds in trust required that the Society should be incorporated, that step was taken in 1932. A small group of members met in Washington, D. C., on July 5, 1932, dissolved the old unincorporated Society, and voted incorporating under the laws of the District of Columbia. This was done only after thorough investigation by a committee and authorization of the step at the New Orleans meeting in December, 1931.

The Society has not organized any special war program, although many members are engaged in research and production problems related directly to the war. Each is giving his talents to whatever phases of the war lies nearest to his training, and to the opportunity which offers. The difficulties of organizing any concerted effort outside of individual work in institutional laboratories seemed to indicate that the best way to meet the crisis was for each man to enlist in the most essential activity open to him.

The Society looks forward to the resumption of its development when peace has been restored. It has had an unusual opportunity for usefulness, and serves a large field in agriculture, horticulture, agronomy, forestry, ecology, pathology, and genetics. It is, indeed, this fundamental relation of plant physiology to the whole of botany that has been responsible for the rapid development of the Society during the past 20 years.

## Membership in the Association

### Eligibility for Membership

Membership in the Association is open to all persons engaged in scientific work, whether in the fields of the natural or the social sciences; to all amateur scientists, whatever their special interests; and to all who desire to follow the advances of science and its effects upon civilization. Members having made substantial contributions to the advancement of science are eligible for election as fellows.

### Dues and Publications

Membership dues are \$5 per year, including subscriptions for the monthly A.A.A.S. BULLETIN and either the weekly journal *Science*, now in its 99th volume, or *The Scientific Monthly*, now in its 58th volume. *Science* is a journal for professional scientists; the *Monthly* is a nontechnical journal for the intelligent public. The Association also publishes technical symposia and nontechnical books on science that are available for members at prices substantially below those to the public.

### Organization and Meetings

The Association was founded in 1848, with an initial membership of 461. Papers in its early programs were classified as either natural philosophy or natural history. Now its work is organized under 16 sections and 189 associated societies having a total membership of over 500,000. Its annual meetings are the greatest regular gatherings of scientists in the world.

### Nominations and Applications for Membership

Members may submit nominations for membership at any time, and persons desiring to become members can obtain membership application forms from the Office of the Permanent Secretary, the Smithsonian Institution Building, Washington 25, D. C.

### Changes of Address

New addresses for the Association's record and for mailing the journals *Science* and *The Scientific Monthly*, as well as the A.A.A.S. BULLETIN, should be in the Office of the Permanent Secretary, Washington 25, D. C., at least two weeks in advance of the date when the change is to become effective.

### Officers of the Association

*President*, Anton J. Carlson; *Permanent Secretary*, F. R. Moulton; *General Secretary*, Otis W. Caldwell; *Treasurer*, W. E. Wrather; *Director of Publications*, F. L. Campbell; *Assistant Secretary*, Sam Woodley.

*Executive Committee*: Burton E. Livingston, *Chairman*; Roger Adams, Joseph W. Barker, Otis W. Caldwell, Walter B. Cannon, Anton J. Carlson, Arthur H. Compton, Kirtley F. Mather, F. R. Moulton, Elvin C. Stakman, and W. E. Wrather.



